

U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4, SCIENCE and ECOSYSTEMS SUPPORT DIVISION
ATHENS, GEORGIA 30605-2720

October 17, 2001

4SESD-EI

MEMORANDUM

SUBJECT: Report of Findings from South Carolina Vermiculite Sampling
SESD Project #'s: 01-0809, 01-0811, and 01-0812.

FROM: Kevin Simmons
Enforcement Section

THRU: Steve Hall, Chief
Enforcement Section

TO: Carter Williamson, OSC
Emergency Response and Removal Branch
Waste Management Division

Attached is the report and associated data sheets on the vermiculite sampling in Region 4.

Please call me at 706.355.8730 if you have any comments or questions.

Attachment



**Region 4
Asbestos/Vermiculite Investigation:**

**Asbestos Results from Vermiculite Processing Facilities in South Carolina
(June 2001)**



October 17, 2001

Science and Ecosystem Support Division
Environmental Investigations Branch
980 College Station Road, Athens, Georgia 30605

INTRODUCTION

On June 6, 2001 staff from the USEPA Region 4, Science and Ecosystem Support Division (SESD), Enforcement and Investigations Branch (EIB) collected vermiculite ore samples from processing facilities and mines in the Enoree and Woodruff, South Carolina areas. The facilities are primarily vermiculite expansion plants or mines. The focus of the sampling was to determine if current handling and processing activities have resulted in asbestos contamination that would be a threat to on-site or off-site human receptors. The results of these sampling investigations are included in this report.

BACKGROUND

The concern over asbestos contamination arose from the discovery of high concentrations of asbestos in the vermiculite deposits in Libby, Montana. The W.R. Grace Company closed the Libby Mine in 1990, but investigators wanted to determine if vermiculite ore from Libby had been shipped to other processing plants around the country. In May 2000 an evaluation of 22 past and present vermiculite operations in Region 4 was initiated by the Emergency Response and Removal Branch (ERRB) in Atlanta, GA. Site surveys were conducted by a Superfund Technical Assessment and Response Team (START) contractor to determine if sampling was necessary. Of the 22 facilities evaluated it was determined that only 8 would require sampling. This sampling occurred between October 2000 and March 2001. In May 2001, three more facilities were added to the sampling list. These were Carolina Vermiculite, Palmetto Vermiculite and WR Grace in South Carolina.

STUDY OBJECTIVES

The objective was to collect bulk material samples from each facility and analyze them for releasable asbestos using both Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM). The result would be used to determine if the material was "asbestos containing" according to the Toxic Substances Control Act (TSCA) definition of greater than 1% asbestos by weight (U S Code: Title 15, Section 2624).

STUDY AREA

The following facilities in South Carolina were sampled:

Carolina Vermiculite	P O Box 98	Woodruff, SC
Palmetto Vermiculite	P O Box 178	Woodruff, SC
WR Grace	26383 Hwy 221	Enoree, SC

STUDY METHODS

Surface soil samples were collected, when possible, close to where the exfoliation process was conducted and in the area where the raw ore was stored. Additionally, a sample of the raw ore was collected when available. If the plant had more than one source of vermiculite, a sample was

collected from each source. Approximately 1 kg of sample was collected for analysis. All samples were collected in accordance with the US EPA Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May, 1996. Samples were analyzed in accordance with the **US EPA Superfund Method for the Determination of Releasable Asbestos in Soils and Bulk Materials, Interim Version (Revised MDL)**. Laboratory data sheets are Attachment 1.

STUDY RESULTS

Carolina Vermiculite, Woodruff, SC 06/06/01
Project #01-0811

Sample ID	Sample Description	Results
CV-001-VO	Ore from Hanna Mine	None Detected
CV-002-VO	Blend pile	None Detected
CV-003-VO	"Slime" from ditch to settling pond	None Detected
CV-004-VO	Ore concentrate	None Detected
CV-005-VO	Ore from Fanny Young Mine	None Detected

Palmetto Vermiculite, Woodruff, SC 06/06/01
Project #01-0812

Sample ID	Sample Description	Results
PV-123-VO	Composite of African ore grades A2, A3, A4	None Detected
PV-004-VO	Virginia ore	None Detected
PV-005-VO	Carolina ore	None Detected
PV-006-VO	Waste rock	None Detected
PV-007-VO	Finished product	None Detected

WR Grace, Enoree, SC 06/06/01
Project #01-0809

Sample ID	Sample Description	Results
WR-001-VO	Davis Mine ore	<1% Tremolite /Actinolite
WR-002-VO	Ball Mine ore	<1% Tremolite
WR-003-VO	Rim Pile at plant	None Detected
WR-004-VO	#3 ore concentrate	None Detected
WR-005-VO	#4 expanded vermiculite	<1% Tremolite
WR-006-VO	Stoner rock from #4 vermiculite	None Detected
WR-007-VO	Tailings pond	<1% Tremolite /Actinolite

The above results were submitted by EMSL Laboratory, Westmont, NJ and reviewed by Integrated Laboratory Systems, Athens, GA. No data qualifiers were applied to the results.

CONCLUSIONS

From the laboratory results, 13 of the 17 samples submitted for asbestos analysis were "None Detected" and the remaining 4 samples were "<1% Tremolite" or "<1% Tremolite/Actinolite". Therefore, according to the current TSCA definition of >1% being an asbestos containing material, no further action is needed.

LITERATURE CITED

US EPA Region 4 Environmental Investigations Standard Operating Procedures and Quality Assurance Manual. May 1996.

US EPA Superfund Method for the Determination of Releasable Asbestos in Soils and Bulk Materials, Interim Version, Revised MDL.

Toxic Substances Control Act, US Code: Title 15, Section 2642.

ATTACHMENT 1

ANALYTICAL DATA SHEETS

**Submitted by
EMSL Laboratory
Westmont, NJ
and reviewed by
Integrated Laboratory Systems,
Athens, GA**